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Technical Research Report 1146

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RESEARCH ON THE SELECTION OF OFFICER CANDIDATES AND CADETS

by Leo J. Kotula and Helen R. Haggerty

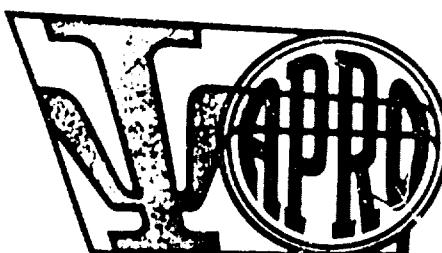
Behavioral Evaluation Research Laboratory

MAY 1966

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RESEARCH ON THE SELECTION OF OFFICER CANDIDATES AND CADETS

by Leo J. Kotula and Helen R. Haggerty

**BEHAVIORAL EVALUATION RESEARCH LABORATORY
Leonard V. Gordon, Chief**

U. S. ARMY PERSONNEL RESEARCH OFFICE

**Office, Chief Research and Development
Department of the Army**

Washington, D. C. 20315

May 1966

**Army Project Number
2J024701A722**

Cadet Leaders -00

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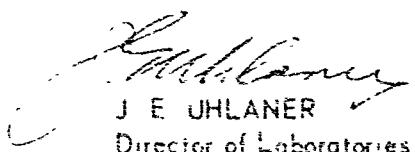
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FOREWORD

The Behavioral Evaluation Research Laboratory of the U S Army Personnel Research Office conducts research related to special manpower procurement requirements such as the identification of officer potential and special capabilities, the identification of personnel capable of functioning effectively in close or sensitive interaction with representatives of other countries, and the definition of psychological requirements of individuals or small groups performing in unique or hazardous environments.

The objective of the CADET LEADERS Task is to develop and refine psychological measures for use in primary officer selection and evaluation programs, specifically in selecting students for the Reserve Officer Training Corps, the Army Officer Candidate Schools, and the U. S. Military Academy. The present report describes selection procedures now in effect for each of the programs and states the research basis for the measures used. The report also surveys current research requirements for officer procurement programs recently expanded by Act of Congress, research needed to adapt selection procedures to current OCS training requirements, and special studies for the USMA.

The entire research Task is responsive to special requirements of the Chief, Office of Reserve Components, the Deputy Chief of Staff for Personnel, and the Superintendent of the U. S. Military Academy, as well as to the general requirement to contribute to accomplishments of the objectives of RDT&E Project 2J024701A722, "Selection and Behavioral Evaluation", FY 1966 Work Program.



J. E. UHLANER
Director of Laboratories

RESEARCH ON THE SELECTION OF OFFICER CANDIDATES AND CADETS

BRIEF

Objective:

To improve selection for the primary officer procurement programs, particularly with respect to identification of leadership potential and career motivation, so that a large number of highly qualified graduates who are likely to remain in the service will be available for commissioning.

Procedure:

Separate developmental research has been conducted for each of the primary officer procurement sources--ROTC, OCS, and the USMA. While instruments and procedures have been tailored to the selection framework and objectives of each officer training program, the research efforts have provided mutually useful information on the kinds of psychological measures likely to be effective in selecting individuals for appointment as cadets or officer candidates. Measures of leadership potential and career interests and attitudes are being developed with the objective of reducing attrition.

Accomplishments:

A continuing research program has resulted in the development, operational implementation, and improvement of tests of mental ability, physical proficiency, and leadership which are used in selecting cadets and officer candidates.

Two new forms of the ROTC Qualifying Examination, RQ-8 and RQ-9, have been developed and were implemented in the spring of 1966 to screen students for admittance to the Senior ROTC Division (Military Science III).

A Basic ROTC Examination for screening MS I students has been developed and standardization data are being analyzed. The test will be available for use in the fall of 1966.

A series of studies involving the development and validation of measures of leadership potential and cadet motivation at USMA have been completed.

Forecast:

Recent expansion of officer procurement programs and increased specialization in officer training necessitate modifications in selection instruments and procedures. In research to be undertaken on this problem, considerable reliance will be placed on adapting selection instruments found to be useful for the USMA to meet the specific need of the OCS and ROTC programs. Research will continue at the USMA to develop new measures of cadet leadership and motivation based on a more intensive analysis of leadership qualities and skills as they emerge in the course of training and following commissioning.

RESEARCH ON THE SELECTION OF OFFICER CANDIDATES AND CADETS

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RESEARCH ON THE SELECTION OF OFFICER CANDIDATES AND CADETS

SCOPE OF THE REPORT

The three primary sources from which the Army obtains junior officers are: (1) the Reserve Officer Training Corps (ROTC), Senior Division Program; (2) the Officer Candidate Schools (OCS); and (3) the United States Military Academy (USMA). The largest single source of junior officers in the Army is the Senior Division ROTC Program established in 232 colleges and universities. In FY 1965, 11,400 ROTC graduates received commissions as compared with 2300 OCS graduates and 522 USMA graduates. Approximately 10 percent of ROTC and OCS graduates apply for a commission in the Regular Army; the remaining 90 percent receive commissions in the Army Reserve. All USMA graduates who are commissioned receive Regular Army commissions.

Previous research conducted by the U. S. Army Personnel Research Office (U. S. APRO), dating back to World War II, resulted in the development, improvement, and implementation of tests of mental ability, physical proficiency, cadet motivation, and leadership potential, adapted to the specific needs of each training program. In the continuing research effort, the importance of the ROTC program as the primary source of junior officers requires the updating of current selection instruments and the development of new instruments for specific aspects of the program, taking into consideration changes introduced by ROTC legislation in 1964. A similar requirement to update selection instruments has emerged in the OCS program which was considerably expanded in 1965. A requirement also exists to provide support to the Office of the Director of Admissions and Registrar, USMA, with respect to the development and evaluation of measures of leadership potential and cadet motivation which can be incorporated into the USMA selection system. The present report reviews the selection problems in each program and the research effort being expended on these problems.

ROTC RESEARCH

The Senior Division ROTC Program

The Senior Division ROTC Program consists of a Basic Course of two years of Military Science (MS I and MS II) and an Advanced Course of two years (MS III and MS IV). Summer camp training is provided in the Advanced Course following completion of MS III.

Although the initial enrollment is very large, the number of graduates is well under the number the Army would like to have for consideration. Statistics taken over the past five years show that enrollment in

the Basic Course drops from approximately 85,000 to 52,000 during the first year and to 46,000 during the second year at which time selection procedures are applied for admission to the Advanced Course. Approximately 37,000 students qualify for the Advanced Course but only 13,500 enroll in MS III. Normally, 11,500 students complete the program and apply for a commission in the Army Reserve or in the Regular Army.

Provisions were made under the ROTC Vitalization Act (PL 88-647, 16 October 1964) to attract into the Senior Division ROTC Program a greater number of qualified and motivated individuals who would eventually apply for Regular Army commissions. One thousand scholarships were provided for the school year 1965-1966 and a like number for the school year 1966-1967: 400 four-year scholarships to selected students entering the Basic Course and 600 two-year scholarships to selected students who had completed the Basic Course. In addition, a two-year program was initiated in school year 1965-1966 for approximately 600 selected students with no prior ROTC training. In the two-year program, preliminary summer camp training, to be conducted prior to enrollment in MS III, was provided as a substitute for the Basic Course.

Current Selection System

Overview. Applicants for the Senior Division ROTC Program must meet citizenship, character, medical, and educational requirements. For enrollment in the Advanced Course (MS III), they must also achieve a minimum qualifying score on the ROTC Qualifying Examination and show evidence of potential to become effective officers during their ROTC training. Superior students are designated Distinguished Military Students in their senior year and are eligible to apply for RA commissions.

The ROTC Qualifying Examination. This examination is administered in the spring of the sophomore year as a basis for selecting MS II students for the Advanced Course. The examination measures verbal and mathematical abilities which have been found to be closely related to success in general college and military science courses. A minimum qualifying score is set each year to screen out approximately 16 percent of the MS II population. Approximately two and one-half as many students qualify on this basis as are desired for the Advanced Course. The procedure allows for attrition resulting from such factors as failure to meet academic, leadership, and physical requirements, and voluntary disenrollment from the program.

Selection requirements established in 1965 for the two-year Senior Division Program are identical to those used in the four-year program.

Selection Requirements for Scholarship Students. For two-year scholarship applicants who have completed the Basic Course, selection requirements are similar to those used in selecting Distinguished Military Students in the four-year program. In addition to qualifying on the basis

of the ROTC Qualifying Examination and a medical examination, applicants have to meet academic requirements: standing in the upper half of their college class and in the upper third of their ROTC class. For each scholarship allotted to an institution, one principal and one alternate is selected by an institutional selection board headed by the Professor of Military Science. Final approval of nominees is by Army commanders.

Selection requirements for four-year scholarships are patterned after the USMA selection system described in a later section of this report. Such selectors as the Scholastic Aptitude Test, high school record, board interview, and a record of athletic and other extracurricular activities are combined to establish an order of merit system for use in selecting from each Army area applicants who are physically qualified.

Selection of ROTC Graduates for the Regular Army. Approximately 10 percent of ROTC graduates (1500 each year) receive RA commissions. The men are selected for commissioning from among the Distinguished Military Graduates in the program on the basis of a composite score on two selection instruments, the ROTC Evaluation Report and the ROTC Inventory.

ROTC students who have successfully completed MS III and who have demonstrated academic ability and leadership potential (standing in the upper half of their college class and in the upper third of their ROTC class) may be tentatively designated Distinguished Military Students (DMS) by the Professor of Military Science (PMS). These students are ear-marked for observation by their summer camp commander who insures that they are rated on their potential officer qualities as required on the ROTC Evaluation Report. Students favorably recommended by the summer camp commander are officially designated DMS's by the PMS who also rates them on the ROTC Evaluation Report. Each officially designated DMS may apply for a commission in the Regular Army. If he does, he is required to complete the ROTC Inventory of his skills, interests, and attitudes as an indication of his leadership potential.

Applicants are ranked in order of merit as shown by a weighted composite score computed for each applicant on the basis of the personal inventory score and evaluations obtained from the summer camp commander and the PMS. Applicants are selected for RA commissions by a selection board and are given assignments based on consideration of their educational background, Branch preference, and available vacancies. Applicants who are not selected for commissioning and Distinguished Military Graduates (DMG's) who do not apply for a commission in the Regular Army are given appointments in the Army Reserve and placed on active duty.

Current Research Requirements and Problems

Development of New Forms of the ROTC Qualifying Examination, RQ-8 and RQ-9. The first forms of the ROTC Qualifying Examination, RQ-1 and RQ-2, were developed and implemented in 1947. These forms were patterned after the American Council on Education Psychological Examination for College Freshmen, an instrument widely used at that time as a general ability screening test in colleges and universities. Validation studies of early forms indicated that the verbal and mathematics subtests were sufficiently correlated with academic performance in college to justify their use in screening MS III students (1). Subsequent forms, including the current forms, were shortened for administration in one class period. They consist of verbal and mathematics subtests. RQ-3 was implemented in 1949, RQ-4 and RQ-5 in 1956, and current forms RQ-6 and RQ-7 in 1961. The current forms were standardized on samples selected from the MS II population for use in screening MS III students.

In 1964, two new forms, RQ-8 and RQ-9, were constructed by the Educational Testing Service¹ under contract to the Department of the Army.

The new forms were constructed to provide for more reliable part scores (verbal and mathematics) than the current forms with the possibility that the part scores could be used in determining branch assignment of ROTC graduates receiving Army commissions. Three changes were introduced in the new forms in an attempt to obtain greater reliability of part scores:

1. Two verbal sections and two mathematics sections were included in each form rather than a single verbal section and a single mathematics section.
2. Five-choice items rather than four-choice items were utilized.
3. A greater variety of mathematics items was included.

Inasmuch as the changes increased testing time from 50 to 100 minutes, each form was printed in two parts for administration in two separate class periods, if necessary. These forms were standardized on a ten percent sample of the MS II population selected from all ROTC institutions and tested in the spring of 1965. RQ-8 and RQ-9 will supersede the current forms, RQ-6 and RQ-7, in the spring of 1966, for use in screening students for MS III.

¹ Dr. Joseph L. Boyd, ETS, was the project Director.

Mathematical Requirements for Artillery Branch Assignments Procedures for optimal assignment of ROTC graduates to control branch are required to insure an equitable distribution of officer talent in all branches. The current requirement that for assignment to the Artillery, ROTC graduates must have completed high school trigonometry is being reconsidered. This requirement appears to have resulted in overselection on mathematical ability inasmuch as many ROTC graduates with a good mathematical background (majors in mathematics, science, or engineering) are arbitrarily assigned to the Artillery.

A preliminary study was undertaken in 1963 to determine whether the mathematics part score of the ROTC Qualifying Examination would be an appropriate substitute for the current trigonometry requirement. In this study, ROTC graduates entering seven classes of the Basic Artillery Officer's Course in FY 1964 were tested with RQ-7 in their first week of training and their mathematics and verbal part scores were compared with their gunnery grades and final course grade.²

Results of the study (See Appendix A for validity findings) supported use of the RQ mathematics subtest in selecting ROTC graduates for assignment to the Artillery Branch. Judging from the effectiveness of the measure and considering that trigonometry is no longer taught as a separate course in many high schools and colleges, the RQ mathematics subtest should be substituted for the trigonometry requirement for Artillery. Requirements for other branches, however, need to be considered to insure an equitable distribution of officer talent.

A similar problem exists in selecting OCS candidates for the Artillery and Missile OCS. The OCS selection problem may in fact be more critical since OCS candidates have a more limited educational background than ROTC graduates.

Development of the Basic ROTC Examination. Out of approximately 85,000 students enrolling in the Basic Course of the Senior Division ROTC Program, almost one-half disenroll in the first or second year. To reduce the high attrition rate, initial screening of students on academic ability and other factors is virtually a necessity. Current input is screened primarily on the basis of school admission standards which vary considerably from one school to another.

The Basic ROTC Examination now being developed for screening MS I students is a converted form of the ROTC Qualifying Examination, RQ-7, used in the screening of MS III students. Initial screening on the basis of this test of academic skills is expected to result in reduction

² Dr. Wayne E. Cruze, Educational Services Branch, Fort Sill, Oklahoma, was the principal investigator in this study.

in the number of students who fail to complete the Basic Course for academic reasons or who later fail to achieve the score required for MS III on the ROTC Qualifying Examination.

Standardization data for the Basic ROTC Examination were collected in November 1965 in a ten percent sample of MS I students selected from all ROTC institutions. The main objective of the standardization study is to establish a minimum qualifying score which will be applicable to MS I input at all ROTC institutions, and particularly to input at 103 units at which the Basic Course is elective rather than required, since MS I screening, if instituted, will undoubtedly be limited to these units. An additional objective will be to obtain information on comparable qualifying scores on the Scholastic Aptitude Test (SAT) and on the American College Test (ACT), the two most widely used college entrance examinations. The necessary test standardization is expected to be completed so that the test will be ready for use in screening for the 1966-1967 school year.

Selection of DMG's for RA Commissions. Research on the development of instruments for use in selecting DMG's applying for RA commissions was undertaken in 1946, concurrently with a similar requirement for the integration of reserve officers into the Regular Army (1). Initial forms of the ROTC Evaluation Report and the ROTC Inventory were first used operationally in 1951.

The two DMG selection instruments, with minor revisions, continue to be used operationally today in the same general form in which they were originally implemented in 1951. In addition to the need for refining and updating the instruments, there exists a critical need for improving the overall selection system, particularly in view of results obtained in DMG follow-up studies (Appendix A) which show that the instruments have limited value in predicting later officer performance as measured by Officer Efficiency Reports.

Additional research is needed to improve DMG selection procedures. Two procedures under consideration are: (1) the use of a personal inventory in the early identification of DMG's rather than in final selection; and (2) the use of peer ratings in conjunction with the supervisory ratings obtained on the ROTC Evaluation Report.

Additional Selection Problems. Consultative assistance was provided to the Office of Reserve Components on the operational requirement to establish selection procedures for scholarship students and for the new two-year Senior Division ROTC Program in 1965. As described previously, selection procedures and instruments found to be useful in the USMA, OCS, and the four-year ROTC Program were adapted for this purpose. In general, USMA selection procedures were considered to be most appropriate for selecting four-year scholarship students while ROTC selection procedures were considered to be most appropriate for selecting two-year scholarship students and students applying for the two-year ROTC Program.

RESEARCH ON SELECTION FOR OCS

Overview of the Selection System

In-service Applicants. The OCS selection system is essentially a successive hurdles system, inasmuch as only those who qualify on initial mental screening tests are eligible to apply for OCS. Physical, educational, and moral requirements must also be met as in the Senior Division ROTC Program. Applicants who meet these general requirements are selected competitively on the basis of a leadership selection battery--evaluation report, personal inventory, and board interview. These instruments provide a standardized and convenient basis for determining objectively the relative leadership potential of OCS applicants. For admission to the Artillery and Missile OCS (A&M OCS), an additional mathematical requirement (completion of high school trigonometry or equivalent) must also be met.

OCS Enlistment Option. This option is limited to college graduates applying for OCS upon enlistment. The selection requirements are identical to those applied on in-service applicants with two exceptions:

1. An additional mental screening test, the Armed Forces Qualification Test, is used.
2. The evaluation report is not included in the leadership selection battery.

Initial Mental Screening Instruments

The Armed Forces Qualification Test (AFQT). The AFQT is the general ability test administered at Armed Forces Examining Stations to establish mental qualification for military service. A score of 65 qualifies college students to apply for OCS under the enlistment option.

General Technical Aptitude Area (GT). A composite of scores on two tests of the Army Classification Battery administered at reception stations to all enlisted input. The composite includes the Verbal Test and the Arithmetic Reasoning Test. With a qualifying score of 110 on GT, approximately 35.5 percent of the total enlisted input are eligible for further OCS screening.

The Officer Candidate Test (CCT). This test is administered to all enlisted input who score 110 or above on GT. The test contains a variety of items measuring arithmetic reasoning, reading comprehension, chart reading, and general information. With a qualifying score of 115, approximately 25 percent of the total enlisted input are eligible to apply for OCS.

Instruments for Leadership Selection

The Officer Leadership Qualification Report, (OLR-1). Past or present leadership performance has repeatedly been one of the best indicators of future leadership performance. OLR-1 is a carefully devised rating form for evaluating the present leadership potential of an applicant. The rating emphasizes present performance and is completed by the immediate superior NCO and indorsed by the immediate superior officer as the initial step in processing applicants for OCS.

The Officer Leadership Qualification Inventory (CLI-1). This test is administered to applicants by an OCS Examining Board during final processing of applicants. It includes questions covering a variety of personal factors such as background and personal history as well as interests, skills, and attitudes concerning athletic activities and leadership activities.

The Officer Leadership Board Interview (OLB-1). This two-part interview is conducted by an examining board of from three to five officers. In the first 30 minutes of the interview, the applicant's ability to deal with people is evaluated in a series of miniature interpersonal situations. The applicant is placed at his ease and then presented informally with selected problem situations for discussion. Judging from the manner in which he discusses each problem, Board members evaluate him separately on such specific characteristics as composure, voice quality, and language organization as well as on global characteristics such as his ability to deal with enlisted men and officers.

In the second part of the interview, the board members review the applicant's entire record (medical history, military records, etc.) and make a final recommendation to accept or reject the applicant. A favorable board recommendation is essential to selection, in addition to qualification on the basis of the selection instruments.

Composite Score. Scores obtained on the first part of the interview are later combined with scores obtained on the qualification report and the qualification inventory to provide a composite score of the applicant's fitness for OCS. In the case of Regular Army applicants, additional points are given for length of service (1 bonus point for each 2 months of service up to a maximum of 30). This procedure was established to encourage applications by Regular Army personnel. The minimum qualifying score on the composite is adjusted periodically to meet input demands. Final selection of OCS applicants is made by Army commanders following a review of all records.

Current Research Requirements

Need for a New OCS Selection Battery. The basic research leading to the development and implementation of the current selection instruments was conducted from 1941 to 1956 (2). Initial forms of the Officer

Candidate Test were introduced in 1942, instruments of the leadership selection battery in 1946. Validity information obtained on these forms and on later revisions indicated that they were generally satisfactory in predictive efficiency, particularly of academic grades (See Appendix B). Instruments in the leadership selection battery are generally more closely related to leadership ratings and pass-fail OCS than the OCT.

In the most recent revision of the selection instruments in 1956, the board interview and the evaluation report were modernized and re-titled the Officer Leadership Board Interview and the Officer Leadership Qualification Report respectively. The third instrument in the leadership selection battery, a biographical information blank, was refined and retitled the Officer Leadership Qualification Inventory. Revisions of the board interview and the Officer Candidate Test were primarily editorial.

Since 1956, there has been an obvious need to update the selection instruments and to adapt them to changing requirements and conditions in the operational situation. This need has become more acute with the gradual expansion of the OCS program in the Infantry OCS and Artillery and Missile OCS (A&M OCS) from FY 1960 to FY 1965 and the marked expansion of the program initiated in FY 1966 which was provided to activate the Engineer, Armor, Signal, QM, Transportation, and Ordnance OCS.³

Results in a recent study show considerable reduction in the effectiveness of the current instruments since 1956 (Appendix B). In subsequent research, special consideration will have to be given to adapting the selection instruments to changing characteristics of the applicant population and to differential requirements in the various schools, particularly schools which provide specialized training such as A and M, Signal, Transportation, and Ordnance. The reduced effectiveness of the OCS instruments since 1956 may to some extent be attributed to failure to take such factors into consideration. Currently, for example, the Officer Leadership Qualification Report does not provide for adequate evaluations of basic trainees who apply for OCS in large numbers, inasmuch as raters have usually had limited opportunity to observe and evaluate them.

The Officer Leadership Board Interview poses special problems. The instrument had established validity when used as intended. Comments received from operating personnel, however, indicate that there is considerable variation in the conduct of the interview and in the emphasis placed on the two parts of the interview (observation and evaluation of specific personal characteristics followed by final review and recommendation).

³ Annual enrollment in the Infantry and in the A&M OCS rose from 1038 in FY 1960 to 3243 in FY 1965. In the expanded OCS program in FY 1966, a goal was set to obtain an annual enrollment of 11,700.

The net effect of such variation is to reduce the validity of the interview. If the interview is to be an effective selection instrument, it should be modified to insure uniform procedures which would be more acceptable to OCS examining boards.

Selection of Distinguished Military Graduates (DMG's). As in the case of ROTC graduates, OCS graduates must distinguish themselves by demonstrating qualities of leadership in order to be designated DMG's. DMG's are selected by the school commandant primarily on the basis of their final course standing (final course grade combined with cadet and officer rankings). The final selection is made from the ranks of graduates who score in the upper tenth of their class. DMG's are eligible to apply for Regular Army commission.

The current selection procedure is considered effective inasmuch as cadet and officer rankings in OCS give fairly accurate indications of later officer performance in garrison and in combat (2). Academic course grades and physical efficiency test scores have been found to be relatively unpredictive of later officer performance. Further research on selection of DMG's in OCS will be integrated with similar research for the Senior Division ROTC program.

RESEARCH FOR THE UNITED STATES MILITARY ACADEMY

The Selection System

To qualify for admission to the USMA, candidates must meet citizenship, character, medical, and educational requirements. They must also meet specified standards on a selection battery which includes measures of academic ability and proficiency, physical proficiency tests, and evaluations of leadership potential.

Applications for admission to the USMA are limited to candidates nominated by members of Congress or by the Secretary of the Army. Most Congressional nominees are selected by the principal-alternate method. Each member of Congress may nominate six candidates for each vacant cadetship allotted to him, naming one as principal and ranking the others as alternates 1 to 5. The principal need meet only minimum qualifying scores on the academic and physical proficiency measures. A qualified alternate can be appointed only in the event the principal and alternates ranked above him fail to meet minimum qualifications. Nominees under the Secretary of the Army quota and nominees designated as competitive by Members of Congress are ranked on the basis of a composite score on the selection battery, and the best qualified are offered admission.

This composite or "whole man" score is computed by combining scores on individual measures in the selection battery, using the following weights:

Academic measures	60%
Evaluations of leadership potential	30%
Measures of physical proficiency	10%

The overall procedure provides for an equitable distribution of cadetships throughout the United States and its possessions. It corresponds generally to selection procedures used at the U. S. Naval Academy and the U. S. Air Force Academy.

Selection Measures

Measures of Academic Ability and Proficiency. Academic qualification is based on a weighted composite of high school rank and scores on tests of the College Entrance Board Examination--Verbal and Mathematics subtests of the Scholastic Aptitude Test, English Composition Achievement Test, and Mathematics Achievement Test.

Measures of Physical Proficiency. These measures are incorporated in the Physical Aptitude Examination designed to measure strength, coordination, muscular power, endurance, speed, and agility. Qualification is determined on the basis of total performance on physical performance tests such as broad jump, hurdle run, pull-ups, vertical jump, and rope climb.

Evaluations of Leadership Potential. Evaluations are based on information obtained on the School and Personal History Form. They take into consideration participation in school and community activities both athletic and social.

Research Support Provided by U. S. APRO

Because the number of vacancies at USMA each year is far smaller than the number of applicants, there is understandable concern that only the best qualified applicants be selected. Current selection instruments and measures, developed by the research staff at USMA with support from U. S. APRO, are under continuous study and review to maintain their effectiveness. In addition, experimental tests of various types are under study to determine whether their use would result in more dependable selection of the better qualified individuals, particularly individuals with leadership potential who are best motivated for attendance at the Academy and for a subsequent Army career. Increased importance is attached to tests of this type in view of the fact that the voluntary resignation rate at the Academy has averaged 20 percent in recent years, most of the resignations occurring in the plebe year.

Research support provided by APRO resulted in the development of the Inventory of Cadet Aptitude, IOCA-2 (3). This inventory contains two empirical measures:

1. A measure of cadet motivation consisting of items which had been found to be predictive of voluntary resignation in several USMA classes.

2. A measure of leadership potential consisting of items found to be associated with the Aptitude for the Service Rating (a weighted composite rating on military aptitude obtained from cadets and tactical officers).

In general, the inventory covers such characteristics as self-confidence in leadership situations, motivation for officer training and service, athletic experience and skill, acceptance of authority and discipline, and facility in interpersonal relations.

While the Inventory of Cadet Aptitude was being developed, research undertaken by the USMA research staff resulted in a development of a high school personality rating, the Aptitude for Service Personality Rating. This rating also appeared to be a promising indicator of cadet motivation and leadership potential. It is a composite of ratings obtained from high school officials on two scales, physical coordination and personal magnetism (ability to get along with others and to influence others).

In a recently completed study of the Class of 1967, the high school personality rating was found to be the best single predictor of leadership and of cadet retention.⁴ Results support findings in previous research on the value of the high school personality rating for selection. Gains in predictive efficiency obtained by combining inventory measures with the high school rating and such operational selectors as the Physical Aptitude Examination were considered insufficient to justify use of the inventory as an operational selector.

In view of the results obtained in this study, no further research on the Inventory of Cadet Aptitude at USMA is contemplated. Further research support to be provided to USMA will be integrated with the comprehensive research program currently being planned by the Product Appraisal Committee at USMA.

⁴ Validity coefficients were .37 for the leadership criterion measure, and .26 for a criterion of retention in the service. Corresponding validity coefficients for the Inventory of Cadet Aptitude were .30 and .17. Against Aptitude for the Service Rating in the Classes of 1961 through 1965, coefficients of the high school rating ranged from .31 to .39. A report on the study is in preparation.

SUMMARY OF CRITICAL REQUIREMENTS FOR RESEARCH IN ALL PROGRAMS

Senior Division ROTC Program

A selection battery is needed for screening input into the Basic Course at institutions at which enrollment is elective rather than required. A cognitive test, the Basic ROTC Examination, is currently being developed for this purpose. This test could be supplemented with instruments and measures used in the selection of four-year scholarship students (high school rank and participation in athletic and extra-curricular activities in high school).

New selection procedures also need to be developed for subsequent screening of Distinguished Military Students. The following procedures will receive some consideration in the projected research effort:

1. Initial screening of MS III input on the basis of academic and ROTC record in the Basic Course and on the basis of a personality test, possibly a revision of the ROTC Inventory which would include measures of cadet motivation and leadership potential incorporated in the Inventory of Cadet Aptitude.
2. Subsequent screening on the basis of a revised form of the ROTC Evaluation Report with provisions for collecting peer ratings to supplement current supervisory ratings.

A differential classification battery taking into consideration differential requirements for branch assignments would be desirable. Until such a battery is developed, continued reliance will have to be placed on special educational requirements, particularly mathematics, in the selection of candidates for Artillery Branch assignments.

OCS Program

The recent expansion of the OCS program requires that immediate steps be taken to devise and validate a new selection battery. The new experimental battery could comprise the following instruments and measures which are considered promising in the light of previous research:

1. Peer ratings of leadership potential obtained operationally in the fifth week of basic training; these ratings could replace the Officer Leadership Qualification Report, which has been eliminated as a selection requirement for basic trainees applying for OCS.
2. A cognitive screening test which, like the ROTC Qualifying Examination, would yield separate verbal and mathematics scores. This test could replace the Officer Candidate Test and would also be useful in selecting candidates with sufficient mathematical ability for the A&M OCS, the Engineer OCS, and the Signal OCS.

3. A high school evaluation form of the type used by USMA to evaluate academic performance and participation in athletic and extracurricular activities in high school or in the community.

4. A personality screening test. The Inventory of Cadet Aptitude developed in USMA research could be adapted for this purpose.

New OCS examining board procedures also need to be developed. One possibility is a general review of qualifications by the board followed by a board interview providing for:

1. Final evaluation of applicants with marginal qualifications.
2. Assignment of qualified applicants to an appropriate OCS.

USMA Program

The USMA system can be considered the most effective of the three selection programs. It has undergone continuous review and refinement throughout its recent history (1942-1966). In this respect, it serves as a useful model for the other programs. The high school personality rating, developed in USMA research may soon be incorporated in the selection system, and is expected to increase the effectiveness of the system in screening candidates who are best qualified on the basis of motivation and leadership potential. Further research on the refinement of the system will proceed in conjunction with an intensive study of officer and leadership qualities as they develop and mature at USMA and following commissioning. A comprehensive research program along these lines is currently being planned by the research staff at USMA.

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APPENDIXES

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APPENDIX A

VALIDITY INFORMATION ON ROTC SELECTION SYSTEM

PREDICTION OF SUCCESS IN BASIC ARTILLERY OFFICERS COURSE

A study was undertaken in 1963 to determine whether the mathematics part score on the RQ would be an appropriate substitute for the current requirement for completion of a high school trigonometry course for assignment to the Basic Artillery Officers Course.

ROTC graduates entering seven classes of the Basic Artillery Officers Course in 1964 were tested with RQ-7 in their first week of training. Their verbal and mathematics part scores were compared with their gunnery course grades and final course grades.

Validity information obtained in this study is presented in Table A-1. Although the validity coefficients varied considerably from class to class, they were sufficiently high to indicate that mathematical aptitude is a significant requirement for the Basic Artillery Officers Course. In general, the mathematics subtest was more highly correlated with gunnery grades (correlation coefficients ranging from .27 to .50) than was the verbal subtest (correlation coefficients ranging from .12 to .31). Correlation coefficients of the two subtests with final course grade were of similar magnitude, ranging from .23 to .49.

Table A-1

RQ-7 VALIDITY INFORMATION OBTAINED IN THE
BASIC ARTILLERY OFFICER COURSE

Class	N	Gunnery Grades					Final Course Grades				
		Validity Coefficients			Multiple R	Validity Coefficients			Multiple R		
		RQ Math	RQ Verbal	RQ Total		RQ Math	RQ Verbal	RQ Total			
1	102	.43	.26	.39	.47	.49	.36	.48	.56		
2	75	.35	.31	.39	.42	.35	.41	.47	.47		
4	95	.32	.21	.30	.35	.33	.24	.33	.36		
5	92	.50	.12	.50	.56	.49	.46	.56	.59		
6	80	.38	.18	.29	.40	.40	.32	.40	.45		
7	79	.37	.22	.31	.38	.39	.29	.38	.42		
8	79	.28	.17	.25	.30	.27	.35	.32	.40		

PREDICTION OF OFFICER PERFORMANCE SUBSEQUENT TO ROTC TRAINING

In a limited follow up study of 110 DMG's conducted in 1950, a validity coefficient of .25 was obtained for the ROTC Evaluation Report. In a more comprehensive study conducted in 1958, validity information was obtained for the Evaluation Report and the ROTC Personal Inventory, as well as for the Composite Score. The study was conducted in two randomly selected samples of DMG's entering the service in 1954 and 1955 on whom Officer Efficiency Reports were available after 6 to 12 months of service. Validity information obtained in this study is presented in Table A-2. Differences in validity coefficients obtained in the two analysis samples are generally not statistically significant and probably represent fluctuations due to random sampling. The validity coefficient of the Composite Score was relatively low in both samples (.28 in Sample 1 and .17 in Sample 2). These validity coefficients are considerably lower than validity coefficients of the Aptitude for the Service Rating, obtained in follow-up studies of USMA graduates (5), which are in the neighborhood of .45 to .50.

Table A-2

VALIDITY INFORMATION OBTAINED IN A DMG FOLLOW-UP STUDY

Variables	<u>Validity Coefficients</u>	
	Sample 1 (N = 426)	Sample 2 (N = 426)
ROTC Evaluation Report (Completed by the PMS)	.19	.13
ROTC Evaluation Report (Completed by the summer camp commander)	.18	.08
ROTC Personal Inventory	.17	.16
Operational Composite Score	.28	.17

APPENDIX B

VALIDITY INFORMATION ON THE OCS SELECTION PROGRAM

In numerous studies, the Officer Candidate Test (OCT) was found to be substantially correlated with academic grades at OCS (validity coefficients in the neighborhood of .60). The instruments in the leadership battery, were found to be correlated with leadership ratings and a pass-fail criterion at OCS. A validity coefficient of .43 was obtained for the composite in one study (4) when correction was made for restriction in range in the applicant population selected on the composite. In a previous study conducted by the same authors (5) an uncorrected validity coefficient of .40 had been obtained for the composite; uncorrected validity coefficients ranging from .19 to .31 were obtained for the individual instruments in the composite.

A recent validation study showed a considerable reduction in the effectiveness of the current instruments since 1956. Validity information, presented in Table B-1, was obtained in two samples representative of input into the Infantry OCS and the Artillery and Mississ. OCS in 1958-1959. During this period, the attrition rate at each school was 29 percent. Validity coefficients of all selection instruments were considerably lower than had been found in research prior to 1956. Differences were also noted in the effectiveness of the instruments in the two samples. The Officer Candidate Test was more effective in predicting academic grades in the A&M OCS sample, yielding a validity coefficient of .39 as compared with .21 in the Infantry OCS sample. This difference was found in spite of the fact that the Artillery sample was more highly restricted on the Officer Candidate Test (mean score = 129.2) than was the Infantry sample (mean score = 124.3). On the other hand, instruments in the leadership selection battery were more effective in predicting a pass-fail criterion in the Infantry sample, with a validity coefficient of .24 for the Composite Score as compared with .06 in the A&M sample. These results suggested that the emphasis placed on academic and leadership skills is considerably different in the two schools.

Table B-1

VALIDITY COEFFICIENTS OF OCS SELECTORS IN TWO SAMPLES
OBTAINED DURING 1958 and 1959

Selectors for OCS	Validity Coefficients ^a	
	For Academic Grades Inf. OCS ^b A&M OCS ^c	For Pass-Fail OCS Inf. OCS ^d A&M OCS ^e
<u>Mental Ability Tests</u>		
Officer Candidate Test	.21	.39
General Technical Aptitude Area	.09	.36
Armed Forces Qualification Test	.12	.21
<u>Measures in the Leadership Selection Battery</u>		
Officer Leadership Qualification Inventory		.17 .66
Officer Leadership Qualification Report		.11 .64
Officer Leadership Board Interview		.16 .66
Bonus Points		-.02 -.02
Composite Score		.24 .66

^a Validity coefficients were not corrected for restriction in range.^b N = 534^c N = 284^d N = 774(534 pass, 240 fail)^e N = 390(284 pass, 106 fail)

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11 SUPPLEMENTARY NOTES	12 SPONSORING MILITARY ACTIVITY Chief, ORC, Wash., D. C. DCSPER, Wash., D. C. Supt, USMA, West Point	
13 ABSTRACT The objective of the CADET LEADERS Task is to develop and refine psychological measures for use in primary officer selection and evaluation programs, specifically in selecting students for the Reserve Officer Training Corps, the Army Officer Candidate Schools, and the U. S. Military Academy. Technical Research Report 1146 describes selection procedures now in effect for each of the programs and states the research basis for the measures used. The report also surveys current research requirements for officer procurement programs recently expanded by Act of Congress, research needed to adapt selection procedures to current OCS training requirements, and special studies for the USMA. Continuing research has resulted in the development, operational implementation, and refinement of tests of mental ability, physical proficiency, and leadership used in selecting cadets and officer candidates. Two new forms of the ROTC Qualifying Examination, RQ-8 and RQ-9, developed to screen students for admittance to the Senior ROTC Division (Military Science III) were implemented in the spring of 1966. A Basic ROTC Examination developed and validated for screening M3 I students will be available for operational use in the fall of 1966. Further research will be undertaken to increase the effectiveness of screening and selection programs in conjunction with an intensive study of officer and leadership qualities as they emerge at the USMA and after commissioning.		

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Security Classification

14. KEY WORDS	LINK A		LINK B		LINK C	
	ROLE	WT	ROLE	WT	ROLE	WT
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